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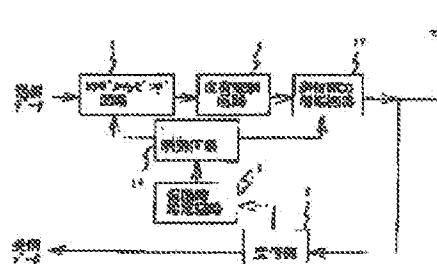
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(54) MULTILEVEL ADAPTATIVE MODULATION RADIO DEVICE

(57) Abstract:

PROBLEM TO BE SOLVED: To improve the power efficiency of a transmission power amplifier circuit by reducing the back-off of the transmission power amplifier circuit when executing transmission under a relatively insufficient transmission line conditions while considering reliability and suppressing the number of bits per symbol.



SOLUTION: A control circuit 14 keeps an error rate in the transmission line conditions at this time to a prescribed value and blow based on an estimation signal by a transmission line estimation circuit 3, selects a modulation system capable of obtaining the maximum information speed and transmits a control signal instructing mapping by this modulation system to a symbol mapping circuit 5. The control signal is transmitted to the transmission power amplifier circuit 17 and instructs the extent of back-off in an amplification operation. When the transmission line conditions is insufficiently, the modulation system is made the system in which multilevel value is small and the zero point of constellation does not cross, then the back-off of the transmission power amplifier circuit 17 is reduced. When the transmission line conditions are satisfactory, the modulation multilevel value is enlarged, and the transmission power amplifier circuit 17 executes an amplification operation in a state large in back-off.